

REMARKS

Claims 1-15 and 17 have been cancelled. Claims 20-23 and 28 have been amended.

New independent claim 33 and dependent claims 32-40 and new independent claim 41 are presented and their entry into the case is requested.

The § 112 Rejection

The rejection of claims 1-15 under §112 has been obviated by the cancellation of these claims.

The rejection of claims 20-27 under §112 is traversed. The phrase "adapted to be" in claim 20 is not intended to define a particular structure or structural interrelationship. It is intended to describe the intended orientation of the probe within the fluid-carrying conduit in which it is to be used. The intended orientation within the conduit gives additional meaning and purpose to the specific structural limitations that are defined. The phrase "adapted to be" is found in countless claims in the U.S. patent art. Section 706.03(d) of the MPEP does not include the phrase "adapted to be" as one that makes claims indefinite under §112. Moreover, the examiner has cited no authority, either references to the MPEP or case law, which would support the rejection. Withdrawal of the rejection is requested.

The § 103 Rejection

The grounds for rejecting claims 1-17 and 20-32 under 35 U.S.C. §103(a) as being unpatentable over Mahoney et al. (Pat. No. 5,969,266) ("Mahoney") in view of Gray (Pat. No. 4,957,007) ("Gray") is traversed. While claims 1-17 have been cancelled, the following argument as to the inappropriateness of the rejection of these cancelled claims applies to the consideration of the allowance of the newly presented claims, as well as to reconsideration of claims 20-32.

The patent to Mahoney discloses a pressure-sensing probe, but that patent does not teach the invention defined in independent claims No. 1(amended), 20 or 28 or in any of the amended or newly presented claims.

The significant and defining limitation in the pending independent claims, 20, 28, 31, 33 and 41 is the substantially flat impact surface extending across the width of the bluff body. Clearly, the impact surface of the probe disclosed in Figures 2, 7 and 8 of Mahoney, has a rounded leading edge that tapers on both of its sides into angular, inclined impact surfaces. In Mahoney, each of the two inclined surfaces has flat portions, but the overall impact surface is not flat across its width, as now defined in the pending independent claims. The impact apertures in the Mahoney device are obviously located in the rounded leading edge of the probe body. The impact apertures are not located in the flat portions of the angularly disposed upstream facing surfaces.

The examiner has employed the patent to Gray as a §103 supplemental reference, supposedly showing a flat impact surface that is combinable with the probe of Mahoney to make the invention defined by claims 1-15 and 20-32 obvious. The examiner refers to figures 1, 4 and 5 of Gray to demonstrate a so-called flat impact surface, referring to that portion of the Gray drawings in the vicinity of elements 44, 46, 26, and 28. In spite of this reference to the Gray drawings, it is not understood how this reference depicts any depiction or suggestion whatever of a flat impact surface. The Gray embodiment of Figure 1 does not have a flat surface anywhere. In that embodiment, the orifice-housing body 12 of the probe is cylindrical in shape with rounded ends. The support 18 is cylindrical, as seen in Figure 2. The conduits 26 and 28 are either housed within the support 18 or are exterior of the fluid conduit 8, having no relationship whatever with an impact surface. There is nothing in the vicinity of the tubes 26 and 28 that has any relevance to the claim limitations.

The Gray embodiment of figures 4 and 5 has no flat impact surface on the probe body. Gray discloses a flow directing body 42 that channels fluid through a funnel shaped inlet 50 (not a flat surface) into an orifice 46. The orifice is positioned centrally within the flow channel 48 in the body 42, through which fluid flows around the orifice 46 and exits the body through the symmetrically shaped funnel outlet 52 (See column 3, line 65 to column 4, line 11). The examiner's explanation of how Gray's disclosure

applies to the limitation of claim 1 is not understood. The examiner states in the middle of page 3 of the Office Action: "...that teaches substantially flat impact surface parallel to the impact surface..." Other than referencing the "vicinity of elements 44 and 46, 26, 28" there is no indication whatever in the examiner's action as to the specific structure of Gray's disclosure that supposedly meets the limitation of a substantially flat impact surface, as was recited in claim 1(amended), and now recited in the pending independent claims. The examiner has not pointed out how the apparatus of Gray, in any of his figures, could possibly be combined with the probe disclosed by Mahoney et al. to create the differential pressure probe defined by the rejected claims and now defined by the amended claims and the newly added claims.

The examiner has cited no prior patent or publication that discloses a differential pressure measurement probe having an impact surface that is substantially flat across its width or that extends bilaterally beyond the impact aperture/s. The examiner has cited no prior art that discloses a differential pressure measuring probe having an upstream facing impact surface that is substantially flat and disposed perpendicularly to the direction of fluid flow in the conduit in which the probe is to be placed. Accordingly, the independent claims define patentable subject matter and their allowance is requested.

In view of the patentability of independent claims 20 and 29, the rejected dependent claims are also allowable. Moreover, the examiner has not applied the cited references to any of the dependent claims except to broadly state that Mahoney discloses a second plenum, shaped to include a longitudinally extending rip (sic) portion coupled to the first plenum. The Mahoney rip structure to which the examiner is referring is best understood to be the adjoining flat sides of the two pressure plenums that bisect the diamond shaped probe (maybe a "rib"). How this structure responds to the language of claim 22 is not understood. Claim 22 specifies that the rib portion extends downstream and that it contains therein at least one fluid pressure transmitting hollow section. These limitations certainly cannot be read on the so-called interior rib of Mahoney.

The examiner also refers to Mahoney's alleged further teaching of a "first plenum having a width and the impact surface being shaped to create a localized region of relatively high pressure across substantially the entire plenum width" (referring to column 4, lines 8-29 of Mahoney). However, the Mahoney text contained in lines 8-29 of column 4 does not refer to, suggest or teach anything about a localized area of high pressure across substantially the entire plenum width. Lines 17-29 of column 1 of Mahoney discuss the general concept of high and low pressure sensing in a pitot tube type of differential pressure measuring probe. However, these same

general concepts apply to and have been explained in the specification of the instant case as also applying to the structure of the instant invention. But the presence of such general concepts do not negate the patentability of the rejected claims or the new claims. Furthermore, the examiner does not explain how this particular textual reference in Mahoney specifically applies to any of the rejected claims.

The disclosures, suggestions and teachings of either Mahoney or Gray, individually or in combination, do not meet the limitations of claims 20-32 or any of the newly added claims. Because the examiner has not applied those patents to any of the rejected dependent claims, it is impossible to specifically address or dispute the rejection of any particular claim. Rejected claims 20-32 and the newly added claims define patentable subject matter and their allowance is requested.

Claim 18 has been rejected as unpatentable over Mahoney et al. in view of Westfield et al. Westfield discloses conversion circuitry for coupling a digital field transmitter to an analog type of control device. The general disclosure of Westfield is not at all related to the elements of claim 18 or to those of newly added claim 41. For example, Westfield does not disclose measurement circuitry coupled to the pressure sensor and configured to provide a sensor output related to differential pressure. Westfield does not show a controller coupled to the measurement circuitry and the loop communicator where the controller is adapted to provide a

process variable output to the loop communicator. Because Westfield does not show any of these elements that constitute the limitations of claims 18 and 41, Westfield is an inappropriate and totally irrelevant reference. The teachings of Westfield could not be applied to the Mahoney probe to produce the system defined by claims 18 or 41, nor is there any suggestion in either of these references that such a combination should or could be made by one skilled in the art. Reconsideration of claim 18 and allowance of claims 18 and 41 is requested.

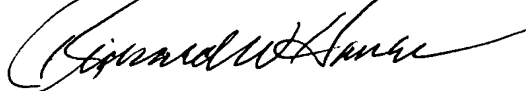
CONCLUSION

The cancelled claims have been cancelled and replaced with the new claims in order to clarify the definition of the invention. Neither the cancelled claims nor the amended claims were cancelled or amended to avoid the prior art, it being believed that the prior art is totally inapplicable to those claims under either sections 102 or 103 of 35 U.S.C. The amended and newly added claims have not been narrowed but, on the contrary, are broader in scope than the claims that they replace.

Having fully responded to the examiner's action, the applicants respectfully request that the pending claims, 18 and 20-41 be allowed.

Dated this 26 day of October, 2001.

Respectfully submitted,



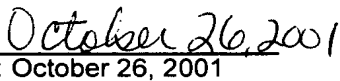
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Docket No. 171.2760

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Date: October 26, 2001